

Claims

- [c1] A bulk silicon etching method comprising the steps of:
- [c2] providing a silicon wafer; diffusing the wafer with dopant, whereby the diffusion creates a PN-junction throughout the surface of the wafer;
- [c3] providing a mask; positioning the mask in overlying relation to the surface of the wafer; patterning a layer of oxide on the surface of the wafer; etching the wafer to create recessed areas coincident with the patterned oxide, the recessed areas characterized by the absence of surface PN-junction; hydrofluoric acid etching the wafer to form porous silicon thereon, whereby the porous silicon is formed coincident with the surface wafer area characterized by the absence of surface PN-junction; subjecting the wafer surface to wet etching resulting in dissolution of the porous silicon.
- [c4] The method of claim 1, wherein the silicon wafer is an N-type silicon wafer.
- [c5] The method of claim 1, wherein the dopant is a P-type dopant.
- [c6] The method of claim 1, wherein the silicon wafer is a P-type silicon wafer.
- [c7] The method of claim 1, wherein the dopant is an N-type dopant.
- [c8] The method of claim 1, wherein the step of patterning a layer of oxide on the surface of the wafer further comprises sputtering the oxide layer.
- [c9] The method of claim 1, wherein the step of etching the wafer further comprises etching the wafer with potassium hydroxide.
- [c10] The method of claim 7, further comprising etching the wafer with potassium hydroxide for about ten minutes.
- [c11] The method of claim 1, wherein the step of subjecting the wafer surface to wet

etching, further comprises subjecting the wafer surface to potassium hydroxide.

[c12] The method of claim 1, wherein the step of subjecting the wafer surface to wet etching, further comprises subjecting the wafer surface to tetramethyl ammonium hydroxide.

[c13] The method of claim 9, wherein the wafer surface is subjected to potassium hydroxide for about thirty seconds.

[c14] The method of claim 10, wherein the wafer surface is subjected to tetramethyl ammonium hydroxide for about thirty seconds.